

## CLAIMS

- 1           1.       A system for effecting and monitoring a real-time process that is  
2 participated in by multiple participants over a network, the system including  
3 multiple components, comprising:  
4           at least one participant computer with a display;  
5           at least one server coupled to the at least one participant computer through  
6 the network;  
7           at least one memory device having stored thereon instructions, which when  
8 executed by at least one of the components, causes the at least one component to:  
9                 periodically collect real-time data regarding the real-time process;  
10                periodically update a display comprising a graphical representation  
11 of a current state of the process using the real-time data;  
12                receive participant inputs via the display, wherein the participant  
13 inputs include changes to a the real-time data; and  
14                in response to the participant inputs, update the display to reflect the  
15 changes to the real-time data.

- 1           2.       The system of claim 1, wherein the real-time process comprises a  
2 multi-participant process conducted over the network, and wherein periodically

3 collecting real-time data comprises periodically polling the server from a network  
4 browser on one of the components to receive the real-time data.

1 3. The system of claim 1, wherein the real-time process comprises a  
2 multi-participant process conducted over the network, wherein the real-time data  
3 includes current values of a plurality of variables, and wherein periodically  
4 collecting real-time data comprises:  
5 receiving a participant specification of a subset of the plurality of variables  
6 to be periodically collected at a first frequency; and  
7 receiving a participant specification of a second frequency at which the  
8 plurality of variables that does not include the subset is collected.

1 4. The system of claim 3, wherein the first frequency is approximately  
2 one collection per second, and the second frequency is a fraction of the first  
3 frequency.

1 5. The system of claim 4, wherein the real-time process comprises an  
2 Internet auction, wherein the plurality of variables includes offer amounts, and  
3 wherein the subset includes highest offer amounts.

1           6.       The system of claim 1, wherein the real-time process comprises a  
2 multi-participant process conducted over the network, wherein the real-time data  
3 includes current values of a plurality of variables, and wherein periodically  
4 collecting real-time data comprises:

5           initially collecting real-time data at a first frequency;

6           monitoring a rate of change of the real-time data collected at sequential  
7 periods;

8           changing a frequency at which real-time data is collected based upon the  
9 rate of change such that a relatively high rate of change results in the frequency  
10 being higher than the first frequency, and a relatively low rate of change results in  
11 the frequency being lower than the first frequency.

1           7.       The system of claim 6, wherein periodically collecting real-time  
2 data further comprises receiving participant-input upper and lower limits on the  
3 frequency.

1           8.       The system of claim 2, wherein the display comprises template-  
2 generated hypertext markup language (HTML) pages, and wherein the real-time  
3 data is conveyed in Java.

1           9.       The system of claim 2, wherein the real-time process comprises an  
2 Internet multi-participant auction, and wherein the real-time data comprises bid  
3 amounts and ask amounts.

1           10.      The system of claim 9, wherein the display comprises a plurality of  
2 objects, each of which represent a participant in the auction, wherein a relative size  
3 of an object indicates a relative number of items held by a seller and a relative  
4 number of items desired by a buyer, and wherein the real-time data includes the  
5 relative number of items held by the seller and the relative number of items desired  
6 by the buyer.

1           11.      The system of claim 10, wherein the plurality of objects comprise  
2 buyer objects and seller objects, wherein a relative distance of a buyer object from  
3 a seller object represents a relative closeness of an asking price associated with the  
4 seller object to an offer price associated with the buyer object, and wherein the real-  
5 time data includes the relative closeness of the asking price associated with the  
6 seller object to the offer price associated with the buyer object.

1           12.      The system of claim 11, wherein the display is approximately  
2 circular, and wherein the display includes concentric grid lines that represent a

3 degree to which a buyer proposal is met by a seller such that the location of objects  
4 relative to the concentric grid lines indicate a quantification of an offer's progress.

1 13. The system of claim 12, wherein the relative distance is produced by  
2 parametric weighting and displayed on a logarithmic scale such that changes in the  
3 auction are accelerated with proximity to the center of the circle.

1 14. The system of claim 11, wherein different colors are used on  
2 different objects to convey information about the objects, including:  
3 whether an object is a seller object or a buyer object;  
4 whether an object is associated with an ask or a bid;  
5 whether an object represents a recently updated offer; and  
6 whether a transaction is a consummated transaction.

1 15. The system of claim 11, wherein different sounds are used to convey  
2 information, including the consummation of a transaction, and an appearance of a  
3 new offer.

1 16. The system of claim 11, wherein the display is approximately  
2 circular, and wherein a radial position of an object on the display conveys

3 information about the object, including a time at which a participant entered the  
4 auction and length of time the participant has been in the auction.

1 17. The system of claim 11, wherein receiving participant inputs  
2 includes the participant manipulating the display, wherein manipulating the display  
3 comprises the participant selecting and moving an object on the display, and  
4 wherein the server is sent updated information reflecting the participant input.

1 18. The system of claim 11, further comprising a cursor that is  
2 manipulable on the display by the participant, wherein the instructions, when  
3 executed, further cause the operating system to display information about an object  
4 when the cursor is moved over the object.

1 19. The system of claim 18, wherein the information includes quantity,  
2 price, length of time an offer has been available, an amount by which an offer  
3 changed since the offer first appeared on the display.

1 20. The system of claim 17, wherein manipulating the display further  
2 comprises the participant placing an object representing an offer on the display and  
3 removing an object representing an offer from the display.

1           21.     The system of claim 20, wherein manipulating the display further  
2 comprises the participant moving an object representing an offer to a center of the  
3 display for consummation of a transaction.

1           22.     The system of claim 21, wherein the display further comprises a  
2 graphical indication of an offer price that is separate from the display and a  
3 graphical offer to confirm the transaction that is separate from the display.

1           23.     The system of claim 11, wherein the display is approximately  
2 circular, and wherein a participant displays information about multiple objects by  
3 manipulating a circle of varying circumference on the display such that information  
4 regarding objects that are inside the circle are displayed.

1           24.     The system of claim 23, wherein the multiple objects comprise  
2 multiple offers, and wherein the information regarding objects that are inside the  
3 circle includes a number of offers inside the circle and a dollar amount representing  
4 all of the offers inside the circle.

5           25.     An interactive user interface for effecting and monitoring a real-time  
6     process, wherein the interactive user interface comprises instructions that, when  
7     executed, cause an operating system to:  
8           periodically collect real-time data regarding the real-time process;  
9           periodically update a display comprising a graphical representation of a  
10    current state of the process using the real-time data;  
11          receive user inputs via the display, wherein the user inputs include changes  
12    to the real-time data; and  
13          in response to the user inputs, update the display to reflect the changes to  
14    the real-time data.

1           26.     The interactive user interface of claim 25, wherein the real-time  
2     process comprises a multi-participant process conducted over a network using a  
3     server, and wherein periodically collecting real-time data comprises periodically  
4     polling the server from a network browser to receive the real-time data.

1           27.     The interactive user interface of claim 25, wherein the real-time  
2     process comprises a multi-participant process conducted over a network using a  
3     server, wherein the real-time data includes current values of a plurality of variables,  
4     and wherein periodically collecting real-time data comprises:



5 receiving a user specification of a subset of the plurality of variables to be  
6 periodically collected at a first frequency; and  
7 receiving a user specification of a second frequency at which the plurality of  
8 variables that does not include the subset is collected.

1 28. The interactive user interface of claim 27, wherein the first  
2 frequency is approximately one collection per second, and the second frequency is  
3 a fraction of the first frequency.

1 29. The interactive user interface of claim 28, wherein the real-time  
2 process comprises an Internet auction, wherein the plurality of variables includes  
3 offer amounts, and wherein the subset includes highest offer amounts.

1 30. The interactive user interface of claim 25, wherein the real-time  
2 process comprises a multi-participant process conducted over a network using a  
3 server, wherein the real-time data includes current values of a plurality of variables,  
4 and wherein periodically collecting real-time data comprises:  
5 initially collecting real-time data at a first frequency;  
6 monitoring a rate of change of the real-time data collected at sequential  
7 periods;

8 changing a frequency at which real-time data is collected based upon the  
9 rate of change such that a relatively high rate of change results in the frequency  
10 being higher than the first frequency, and a relatively low rate of change results in  
11 the frequency being lower than the first frequency.

1 31. The interactive user interface of claim 30, wherein periodically  
2 collecting real-time data further comprises receiving user-input upper and lower  
3 limits on the frequency.

1 32. The interactive user interface of claim 26, wherein the display  
2 comprises template-generated hypertext markup language (HTML) pages, and  
3 wherein the real-time data is conveyed in Java.

1 33. The interactive user interface of claim 31, wherein the real-time  
2 process comprises an Internet multi-participant auction, and wherein the real-time  
3 data comprises bid amounts and ask amounts.

1 34. The interactive user interface of claim 33, wherein the display  
2 comprises a plurality of objects, each of which represent a participant in the  
3 auction, wherein a relative size of an object indicates a relative number of items

4 held by a seller and a relative number of items desired by a buyer, and wherein the  
5 real-time data includes the relative number of items held by the seller and the  
6 relative number of items desired by the buyer.

1 35. The interactive user interface of claim 34, wherein the plurality of  
2 objects comprise buyer objects and seller objects, wherein a relative distance of a  
3 buyer object from a seller object represents a relative closeness of an asking price  
4 associated with the seller object to an offer price associated with the buyer object,  
5 and wherein the real-time data includes the relative closeness of the asking price  
6 associated with the seller object to the offer price associated with the buyer object.

1 36. The interactive user interface of claim 35, wherein the display is  
2 approximately circular, and wherein the display includes concentric grid lines that  
3 represent a degree to which a buyer proposal is met by a seller such that the  
4 location of objects relative to the concentric grid lines indicate a quantification of  
5 an offer's progress.

1 37. The interactive user interface of claim 36, wherein the relative  
2 distance is produced by parametric weighting and displayed on a logarithmic scale  
3 such that changes in the auction are accelerated with proximity to the center of the  
4 circle.

1           38.     The interactive user interface of claim 35, wherein different colors  
2     are used on different objects to convey information about the objects, including:  
3           whether an object is a seller object or a buyer object;  
4           whether an object is associated with an ask or a bid;  
5           whether an object represents a recently updated offer; and  
6           whether a transaction is a consummated transaction.

1           39.     The interactive user interface of claim 35, wherein different sounds  
2     are used to convey information, including the consummation of a transaction, and  
3     an appearance of a new offer..

1           40.     The interactive user interface of claim 35, wherein the display is  
2     approximately circular, and wherein a radial position of an object on the display  
3     conveys information about the object, including a time at which a participant  
4     entered the auction and length of time the participant has been in the auction.

1           41.     The interactive user interface of claim 35, wherein the user is a  
2     participant, and wherein receiving user inputs includes the participant manipulating  
3     the display, wherein manipulating the display comprises the participant selecting

4 and moving an object on the display, and wherein the server is sent updated  
5 information reflecting the user input.

1 42. The interactive user interface of claim 35, further comprising a  
2 cursor that is manipulable on the display by the user, wherein the instructions,  
3 when executed, further cause the operating system to display information about an  
4 object when the cursor is moved over the object.

1 43. The interactive user interface of claim 42, wherein the information  
2 includes quantity, price, length of time an offer has been available, an amount by  
3 which an offer changed since the offer first appeared on the display.

1 44. The interactive user interface of claim 41, wherein manipulating the  
2 display further comprises the user placing an object representing an offer on the  
3 display and removing an object representing an offer from the display.

1 45. The interactive user interface of claim 44, wherein manipulating the  
2 display further comprises the user moving an object representing an offer to a  
3 center of the display for consummation of a transaction.

1           46.     The interactive user interface of claim 45, wherein the display  
2 further comprises a graphical indication of an offer price that is separate from the  
3 display and a graphical offer to confirm the transaction that is separate from the  
4 display.

1           47.     The interactive user interface of claim 35, wherein the display is  
2 approximately circular, and wherein a participant displays information about  
3 multiple objects by manipulating a circle of varying circumference on the display  
4 such that information regarding objects that are inside the circle are displayed.

1           48.     The interactive user interface of claim 47, wherein the multiple  
2 objects comprise multiple offers, and wherein the information regarding objects  
3 that are inside the circle includes a number of offers inside the circle and a dollar  
4 amount representing all of the offers inside the circle.

1           49.     A method for conducting a real-time process that is participated in  
2     by multiple participants over a network system, the system including multiple  
3     components, comprising at least one participant computer with a display and at  
4     least one server coupled to the at least one participant computer through the  
5     network, the method comprising:

6                     periodically collecting real-time data regarding the real-time  
7     process;

8                     periodically updating the display to provide a graphical  
9     representation of a current state of the process using the real-time data;

10                    receiving participant inputs via the display, wherein the participant  
11     inputs include changes to a the real-time data; and

12                    in response to the participant inputs, updating the display to reflect  
13     the changes to the real-time data.

1           50.     The method of claim 49, wherein periodically collecting real-time  
2     data comprises periodically polling the server from a network browser on one of  
3     the components to receive the real-time data.

1           51.     The method of claim 49, wherein the real-time data includes current  
2     values of a plurality of variables, and wherein periodically collecting real-time data  
3     comprises:

4 receiving a participant specification of a subset of the plurality of variables  
5 to be periodically collected at a first frequency; and  
6 receiving a participant specification of a second frequency at which the  
7 plurality of variables that does not include the subset is collected.

1 52. The method of claim 51, wherein the first frequency is  
2 approximately one collection per second, and the second frequency is a fraction of  
3 the first frequency.

1 53. The method of claim 52, wherein the real-time process comprises an  
2 Internet auction, wherein the plurality of variables includes offer amounts, and  
3 wherein the subset includes highest offer amounts.

1 54. The method of claim 49, wherein the real-time data includes current  
2 values of a plurality of variables, and wherein periodically collecting real-time data  
3 comprises:  
4 initially collecting real-time data at a first frequency;  
5 monitoring a rate of change of the real-time data collected at sequential  
6 periods;



7 changing a frequency at which real-time data is collected based upon the  
8 rate of change such that a relatively high rate of change results in the frequency  
9 being higher than the first frequency, and a relatively low rate of change results in  
10 the frequency being lower than the first frequency.

1 55. The method of claim 54, wherein periodically collecting real-time  
2 data further comprises receiving participant-input upper and lower limits on the  
3 frequency.

1 56. The method of claim 50, wherein the display comprises template-  
2 generated hypertext markup language (HTML) pages, and wherein the real-time  
3 data is conveyed in Java.

1 57. The method of claim 50, wherein the real-time process comprises an  
2 Internet multi-participant auction, and wherein the real-time data comprises bid  
3 amounts and ask amounts.

1 58. The method of claim 57, wherein the display comprises a plurality  
2 of objects, each of which represent a participant in the auction, wherein a relative

3 size of an object indicates a relative number of items held by a seller and a relative  
4 number of items desired by a buyer, and wherein the real-time data includes the  
5 relative number of items held by the seller and the relative number of items desired  
6 by the buyer.

1 59. The method of claim 58, wherein the plurality of objects comprise  
2 buyer objects and seller objects, wherein a relative distance of a buyer object from  
3 a seller object represents a relative closeness of an asking price associated with the  
4 seller object to an offer price associated with the buyer object, and wherein the real-  
5 time data includes the relative closeness of the asking price associated with the  
6 seller object to the offer price associated with the buyer object.

1 60. The method of claim 59, wherein the display is approximately  
2 circular, and wherein the display includes concentric grid lines that represent a  
3 degree to which a buyer proposal is met by a seller such that the location of objects  
4 relative to the concentric grid lines indicate a quantification of an offer's progress.

1 61. The method of claim 60, wherein the relative distance is produced  
2 by parametric weighting and displayed on a logarithmic scale such that changes in  
3 the auction are accelerated with proximity to the center of the circle.

1           62.     The method of claim 59, wherein different colors are used on  
2 different objects to convey information about the objects, including:  
3           whether an object is a seller object or a buyer object;  
4           whether an object is associated with an ask or a bid;  
5           whether an object represents a recently updated offer; and  
6           whether a transaction is a consummated transaction.

1           63.     The method of claim 59, wherein different sounds are used to  
2 convey information, including the consummation of a transaction, and an  
3 appearance of a new offer.

1           64.     The method of claim 59, wherein the display is approximately  
2 circular, and wherein a radial position of an object on the display conveys  
3 information about the object, including a time at which a participant entered the  
4 auction and length of time the participant has been in the auction.

1           65.     The method of claim 59, wherein receiving participant inputs  
2 includes the participant manipulating the display, wherein manipulating the display  
3 comprises the participant selecting and moving an object on the display, and  
4 wherein the server is sent updated information reflecting the participant input.

1           66.     The method of claim 65, wherein manipulating the display further  
2     comprises the participant placing an object representing an offer on the display and  
3     removing an object representing an offer from the display.

1           67.     The method of claim 66, wherein manipulating the display further  
2     comprises the participant moving an object representing an offer to a center of the  
3     display for consummation of a transaction.

1           68.     The method of claim 67, wherein the display further comprises a  
2     graphical indication of an offer price that is separate from the display and a  
3     graphical offer to confirm the transaction that is separate from the display.

1           69.     The method of claim 59, wherein the display is approximately  
2     circular, and wherein a participant displays information about multiple objects by  
3     manipulating a circle of varying circumference on the display such that information  
4     regarding objects that are inside the circle are displayed.

1           70.     The method of claim 69, wherein the multiple objects comprise  
2     multiple offers, and wherein the information regarding objects that are inside the

- 3 circle includes a number of offers inside the circle and a dollar amount representing
- 4 all of the offers inside the circle.